

## Refinement of the NexGen Burner Used for Testing the Burnthrough Resistance of Thermal Acoustic Insulation

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Abstract: The FAA Next Generation (NexGen) Fire Test Burner was originally developed to replace the Park DPL-3400 burner originally prescribed for the insulation burnthrough requirement described in FAR 25.856b. Since then, there have been significant modifications to the burner, as it has also been adapted to fire testing of seat cushions, cargo liner materials, and magnesium alloy seat structures. Those modifications include the replacement of the original stator and turbulator with new, CAD-designed and CNC-machined version of the stator and turbulator, with the removal of the igniters from the burner tube and utilizing a modified burner cone with an integrated flame ignition mechanism. The two pass-fail criteria, burnthrough time and heat flux, were evaluated with standard materials to determine the influence of the new burner components and configuration compared with the original NexGen burner configured as described in AC25.856b.